

positions which are normally more dilute (mouth washes, for example) or more concentrated, proportions of potassium may be adjusted accordingly.

The invention has been described in conjunction with illustrative embodiments thereof but is not to be considered to be limited to these because one of skill in the art will be able to utilize substitutes and equivalents thereof without departing from the bounds of the invention and the spirit thereof.

What is claimed is:

1. A desensitizing, anti-tartar toothpaste which comprises an orally acceptable vehicle or base for such composition, an effective anti-tartar proportion of a potassium pyrophosphate and a desensitizing proportion of a tooth pain inhibiting potassium salt which passes through exposed dentin tubules to tooth nerves or neurons, which tooth pain inhibiting potassium salt is potassium nitrate, potassium citrate, potassium oxalate or a mixture of two or more thereof, and which toothpaste comprises a pyrophosphate stabilizing proportion of a polymeric pyrophosphate stabilizer.

2. A toothpaste according to claim 1 wherein a water soluble fluoride is present.

3. An oral composition according to either of claims 1 or 2 in which the polymeric pyrophosphate stabilizer is a synthetic anionic polymeric polycarboxylate.

4. A toothpaste according to claim 3 which comprises 0.5 to 5% of anionic surfactant, 10 to 50% of polishing agent, 10 to 50% of humectant, 0.2 to 5% of thickener, 1 to 5% of said potassium pyrophosphate, 2 to 10% of potassium nitrate, potassium citrate or a mixture thereof, 0.5 to 4% of copolymer of maleic anhydride maleic acid with vinyl methyl ether, a water soluble fluoride in a proportion to provide 100 to 2,300 p.p.m. of fluoride ion and 20 to 50% of water.

5. A toothpaste according to claim 4 wherein the anionic surfactant is an anionic detergent, the polishing agent is a siliceous polishing agent, the humectant is selected from the group consisting of glycerol, sorbitol and polyethylene glycol, and mixtures of two or more thereof, the thickener is selected from the group consisting of natural and synthetic gums and colloids, the desensitizing compound is potassium nitrate, potassium citrate or a mixture thereof, the polyphosphate stabilizer is an alkali metal salt of the copolymer and the water soluble fluoride is an alkali metal fluoride.

6. A toothpaste according to claim 5 which comprises 0.8 to 3% of alkali metal lauryl sulfate, 15 to 35% of silica, 15 to 40% of a mixture of two or more of glycerol, sorbitol and polyethylene glycol of molecular weight in the range of 200 to 1,000, 0.3 to 3% of carrageenan, carboxymethylcellulose, xanthan or a mixture thereof, 1.5 to 4% of a potassium pyrophosphate, 3 to 8% of potassium nitrate, 0.8 to 3% of potassium salt of copolymer of maleic anhydride and/or maleic acid with vinyl methyl ether, of a molecular weight in the range of 5,000 to 2,000,000, enough alkali metal fluoride to supply 400 to 1,500 p.p.m. of fluoride ion in the composition, and 25 to 45% of water.

7. A toothpaste according to claim 5 which comprises 0.8 to 3% of alkali metal lauryl sulfate, 15 to 35% of silica, 15 to 40% of a mixture of two or more of glycerol, sorbitol and polyethylene glycol of molecular weight in the range of 200 to 1,000, 0.3 to 3% of carrageenan, carboxymethylcellulose, xanthan or a mixture thereof, 1.5 to 4% of a potassium pyrophosphate, 3 to 8% of potassium citrate, 0.8 to 3% of potassium salt of copolymer of maleic anhydride and/or maleic acid with

vinyl methyl ether, of a molecular weight in the range of 5,000 to 2,000,000, enough alkali metal fluoride to supply 400 to 1,500 p.p.m. of fluoride ion in the composition, and 25 to 45% of water.

8. A toothpaste according to claim 6 which comprises 0.8 to 1.5% of potassium lauryl sulfate, 15 to 30% of amorphous hydrated silica, 5 to 20% of glycerol, 5 to 25% of sorbitol, 1 to 10% of polyethylene glycol of molecular weight in the range of 400 to 800, 0.5 to 2% of carrageenan, 2 to 3% of tetrapotassium pyrophosphate, 4 to 6% of potassium nitrate, 1 to 2% of neutral potassium salt of copolymer of maleic anhydride and/or maleic acid and vinyl methyl ether, of a molecular weight in the range of 50,000 to 1,100,000, by vapor pressure osmometry, 0.3 to 0.4% of potassium fluoride and 30 to 40% of water.

9. A toothpaste according to claim 7 which comprises 0.8 to 1.5% of potassium lauryl sulfate, 15 to 30% of amorphous hydrated silica, 5 to 20% of glycerol, 5 to 25% of sorbitol, 1 to 10% of polyethylene glycol of molecular weight in the range of 400 to 800, 0.5 to 2% of carrageenan, 2 to 3% of tetrapotassium pyrophosphate, 4 to 6% of potassium citrate, 1 to 2% of neutral potassium salt of copolymer of maleic anhydride or maleic acid and vinyl methyl ether, of a molecular weight in the range of 50,000 to 1,100,000, by vapor pressure osmometry, 0.3 to 0.4% of potassium fluoride and 30 to 40% of water.

10. A toothpaste according to claim 8 which comprises about 1.2% of potassium lauryl sulfate, about 23% of precipitated amorphous hydrated silica, about 10% of glycerol, about 16% of sorbitol, about 3% of polyethylene glycol of molecular weight of about 600, about 0.8% of carrageenan, about 2.5% of tetrapotassium pyrophosphate, about 5% of potassium nitrate, about 1.5% of neutral potassium salt of copolymer of maleic anhydride and/or maleic acid and vinyl methyl ether, of a molecular weight which is determined to be about 70,000 by vapor pressure osmometry, about 0.3% of potassium fluoride and about 30 to 35% of water.

11. A toothpaste according to claim 9 which comprises about 1.2% of potassium lauryl sulfate, about 23% of precipitated amorphous hydrated silica, about 10% of glycerol, about 16% of sorbitol, about 3% of polyethylene glycol of molecular weight of about 600, about 0.9% of carrageenan, about 2.5% of tetrapotassium pyrophosphate, about 5% of potassium citrate, about 1.5% of neutral potassium salt of copolymer of maleic anhydride and/or maleic acid and vinyl methyl ether, of a molecular weight which is determined to be about 70,000 by vapor pressure osmometry, about 0.3% of potassium fluoride and about 30 to 35% of water.

12. A toothpaste according to either of claims 1 or 2 in which the polyphosphate is tetrapotassium pyrophosphate.

13. A toothpaste according to claim 12 which comprises a pyrophosphate stabilizing proportion of stabilizing synthetic anionic polymeric polycarboxylate (SAPP) and water soluble fluoride, wherein the SAPP is a potassium salt of a copolymer of maleic anhydride and/or maleic acid with vinyl methyl ether and the fluoride is potassium fluoride.

14. A process for the preparation of a desensitizing anti-tartar toothpaste according to claim 6 which comprises mixing together glycerol and polyethylene glycol components of the humectant component of such a toothpaste formula, dispersing in such mixture the thickener, copolymer, alkali metal fluoride and a potas-